Claims

1) A system for monitoring and controlling a line (1) manufacturing tobacco products (2), comprising a plurality of production devices and units connected by way of a common interface network (48) to a respective master control unit (82, 83) and/or to visual display means (84), characterized in that it comprises an auxiliary inspection unit (45) associated with the manufacturing line (1), connected to the network (48) and serving to verify at least one characteristic of tobacco products (2) taken as test samples, by which signals indicative of the at least one characteristic of the tobacco products (2) are transmitted to the network (48).

2) A system as in claim 1, wherein the auxiliary inspection unit (45) comprises a detection apparatus (68) capable in real time of verifying the characteristic of the product (2) and relaying a signal indicative of the characteristic to at least one of the production devices or units.

3) A system as in claim 1 or claim 2, wherein the signal indicative of the characteristic is relayed by the auxiliary inspection unit (45) to the visual display means (84) as a source of information.

4) A system as in claim 1 or claim 2, comprising a processing and control unit (81) associated with

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each production device and unit, wherein the signal indicative of the characteristic is relayed by the auxiliary inspection unit (45) to the processing and control units (81) as a prompt for corrective action, in such a way that the auxiliary inspection unit (45) forms a part of at least one feedback control loop.

5) A system as in claims 1 to 4, wherein the auxiliary inspection unit (45) comprises a relative signal processing and routing unit (50) connected to the common interface network (48) and to the master control units (82, 83) of the manufacturing line (1).

6) A system as in claims 1 to 5, wherein the manufacturing line (1) comprises two or more machines, typically a cigarette maker (3) and a filter tip attachment machine (4).

7) A system as in claims 1 to 5, wherein the auxiliary inspection unit (45) comprises means (62) by which to transfer the tobacco products (2), connected to the manufacturing line (1) by way of a device (46) serving to select sample products (2) for testing purposes.

8) A system as in claim 7, wherein the sampling device (46) is connected to the outfeed (39) of the filter tip attachment machine (4).

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9) A system as in claim 8, wherein the sampling device (46) comprises conveyor means (92) presenting single pockets (91), each serving to contain a tobacco product (2).

10) A system as in claim 9, wherein the sampling device (46) comprises shifter means (89), interposed between an outfeed roller (47) of the filter tip attachment machine (4) and the pocket conveyor means (92), capable of movement between a first position and a second position in which a feed channel (90) directing products onto the conveyor means (92) is opened and closed, respectively.

11) A system as in claim 10, wherein the sampling device (46) comprises a conveying take-up roller (86) operating substantially tangential to the outfeed roller (47), by which products are fed to the shifter means (89).

12) A system as in claim 11, wherein the sampling device (46) comprises a collection tray (93) into which tobacco products (2) are directed by the shifter means (89) when in the closed position.

13) A system as in claims 9 to 12, wherein the conveyor means (92) follow a path (P1) of which at least one leg (98, 99, 102) extends substantially transverse to a vertical bulkhead (A) of the filter tip attachment machine (4).

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14) A system as in claims 10 to 13, wherein the feed channel (90) includes at least one end portion presenting a profile of "S" outline.

15) A system as in claims 10 to 13, wherein conveyor means (92) comprise a belt conveyor looped around return pulleys (95, 96) and including an active branch of which the function is to transfer the tobacco products (2) from the outfeed (39) of the filter tip attachment machine (4) to the transfer means (62).

16) A system as in claims 12 to 15, wherein the tray (93) collecting the tobacco products (2) is capable of movement together with the shifter means (89) between a receiving position corresponding to the closed position of the shifter means (8), in which the tobacco products (2) are collected, and an idle position coinciding with a position in which the shifter means (89) are placed to direct the tobacco products (2) onto the conveyor (92).

17) A system as in claim 7 and claim 15, wherein the transfer means (62) of the auxiliary inspection unit (45) comprise means (56) by which single tobacco products (2) are received from the sampling device (46) and feed means (64) by which the same single products (2) are supplied to the detection apparatus (68).

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18) A system as in claim 17, wherein the detection apparatus (68) comprises a unit (66) by which the single tobacco products (2) are retained and transferred, also sensing and inspection means (67).

19) A system as in claim 18, wherein the retaining and transfer unit (66) comprises a support member (69) capable of movement back and forth along a predetermined path (P) between two limit positions of which one coincides with the outlet of the feed means (64), where a single tobacco product (2) is picked up, and the other coincides with the sensing and inspection means (67).

20) A system as in claim 19, wherein the support member (69) is pivotable about an axis (O) parallel to the predetermined path (P) between two limit positions.

21) A system as in claims 18 to 20, wherein the retaining and transfer unit (66) comprises means (71) by which to roll the tobacco products (2).

22) A system as in claim 21, wherein rolling means (71) comprise a pair of rollers (72) placed orthogonally to the predetermined path (P), rotatable about parallel axes in the same direction and affording a seat (73) such as will accommodate a single tobacco product (2).

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23) A system as in claim 19, wherein the sensing and inspection means (67) comprise optical means (74) by which to inspect the entire outer surface of the single tobacco product (2).

24) A system as in claim 19, wherein the sensing and inspection means (67) comprise at least one optical sensor (75) serving to inspect an end portion of the single tobacco product (2).

25) A system as in claim 23, wherein optical means (74) comprise a first television camera (76) equipped with a relative optical assembly, extending along the rollers (72) and serving to inspect the entire outer surface of the single tobacco product (2), also a second television camera (77) equipped with a relative optical assembly, capable of stepping motion along the rollers (72) and designed to inspect predetermined portions of the outer surface of the single tobacco product (2).

26) A system as in claim 21, wherein the retaining and transfer unit (66) of the auxiliary inspection unit (45) is connected in parallel to the manufacturing line (1).

27) A system as in claims 17 and 18, wherein means by which single tobacco products (2) are received from the sampling device (46) comprise a first arm (56) carried by a slide (58) capable of

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translational movement between a position coinciding with the outfeed of the sampling device (46) and a position of release to a second arm (61) capable of rotary movement in such a way as to direct the single tobacco products (2) along a vertical channel (64) connecting at the outfeed end with the retaining and transfer unit (66).

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